RESONANCE QUASILINEAR ELLIPTIC SYSTEMS UNDER AMANN-ZEHNDER TYPE CONDITIONS

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In my talk I will present an Amann-Zehnder type result for resonance systems of quasilinear elliptic equations with homogeneous Dirichlet boundary conditions, involving nonlinearities growing asymptotically (p, q)-linear at infinity. The proof relies on a cohomological linking in a product Banach space where the properties of cones of the sublevels are missing, differently from the single quasilinear equation. Critical groups of the energy functional have been computed at the origin, in spite of the lack of its C^2 regularity, to exclude that the found mini-max solution is trivial. Finally a local condition is given to guarantee that the found solution is not semi-trivial. This is a joint paper with S. Cingolani and G. Vannella.

References

[1] Borgia N., Cingolani S. and Vannella G. "Nontrivial solutions for resonance quasilinear elliptic systems" Advances in Nonlinear Analysis, vol. 13, no. 1, 2024.